

U S S R

UDS 621 : 539.4.CC1.24

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Ukrainian SSR

SOPROTYVLENIYE DEFORMIROVANIYU METALLOV PRI POVTORNOY STATICHESKOY NAGRUZKE
(Resistance to Deformation of Metals Under Repeated Static Loading), Kiev, 1971,
135 pp, biblio, illus, 2,000 copies printed

The book discusses the characteristics of the changes of the mechanical properties of metals during repeated static loading. For an elastoplastically deformed body a mechanico-statistical model is presented which affords the possibility of describing the most essential features of diagrams for repeated deformations. The authors consider some functional equations which characterize the process of cyclic deformation.

The book is intended for scientific and engineering personnel engaged in the study of the strength and ductility of metals.

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USSR

UDC: 553.652/.661.013

SOLOVIN, S. V., YEROSHOVA, V. S., MAZOVER, S. I., GAVRILOV, E. M.

"Determining the Trajectory of Minimum Flight Time of an Aircraft by the Method of Dynamic Programming"

Tr. Leningr. gidrometeorol. in-ta (Works of the Leningrad Hydrometeorological Institute), 1971, vyp. 42, pp 24-35 (from RZh-Mekhanika, No 5, May 72, Abstract No 5B398)

Translation: The paper deals with the problem of an optimum accounting for the effect of a variable wind field on airplane flight. The authors formulate the problem of determining the trajectory along which flight from a point of departure to a point of arrival takes place in minimum time. The airplane trajectory is plotted in a rectangular coordinate system. The method of dynamic programming is used to determine the minimum-time trajectory. In conformity with the principle of optimality on which dynamic programming is based, recurrent relations are written out and used for step-by-step optimization. A program is given for determining the minimum-time trajectory by the method of dynamic programming in algorithmic language algol-60. The program contains all operations which immediately

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SOLOVIN, S. V. et al., Tr. Leningr. gidrometeorol. in-ta, 1971, vyp. 42, pp 24-35

precede optimization: computation of wind velocity components, the flight path of the airplane, etc. An example is given of calculation of the minimum-time trajectory for a given synoptic situation. The initial data for determining the minimum-time trajectory were the values of the geopotential taken at points of intersection of a rectangular grid from a chart of absolute baric topography corresponding to the flight altitude. All calculations were checked on the BESM-4 computer. Bibliography of 14 titles. Author's abstract.

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Optics & Spectroscopy

USSR

UDC 535.37

ASTAF'YEVA, L. V., GAVRILOV, E. P., and DYKHANOV, B. I.

"Luminescence Stability of LiH-Bi Crystals"

Tomsk, Izvestiya VUZ--Fizika, No. 10, 1971, pp 117-119

Abstract: This short communication presents the results of experiments regarding the luminescence of LiH-Bi crystals under large and small dosages of irradiation with light of wavelength 365 nm. The large dosages amounted to 10^8 lux·sec and the small to 10^5 lux·sec. Supplied from one of the lines of a mercury arc spectrum, the light was obtained through the use of spectrophotometer SF-4. It was established, from preliminary experiments, that the 365-nm line stimulated the greatest changes in luminescences from these crystals. Curves are given showing the change of luminescence intensity with time and its subsequent persistence in darkness, and the effect of large dosages together with annealing at a temperature of 300° C over periods of varying length. These curves show that photochemical processes of the type that occur in lithium hydride under the action of light may lead to destruction of the glow centers. The authors are associated with the Ural Polytechnical Institute imeni S. M. Kirov.

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Acc. Nr:

170050587

Abstracting Service:
CHEMICAL ABST. 5170

Ref. Code:

4R0139

94965e Effect of light on the spectra and intensity of the luminescence of lithium hydride crystals activated by magnesium, indium, tin, and lead. Gavrilov, F. F.; Dvinyaninov, B. L.; Svinyakov, V. I. (Ural. Politekh. Inst. im. Kirova, Sverdlovsk, USSR). *Izv. Vyssh. Ucheb. Zaved., Fiz.* 1970, 13 (1), 152-3 (Russ). The LiH crystals were irradiated at room temp. by using the lamp SVDSH-250. The course of the luminescence spectra of the non-irradiated LiH crystals depended on the compn. of the activators, and on the technology of their prepn. The crystals activated with Mg, In, and Sn gave a red and blue luminescence with max. at 640-50, and 450-70 nm. With samples activated with Mg there was also a yellow luminescence at 560 nm. The crystals LiH(Pb) gave only a red luminescence at 680-90 nm. The crystals of LiH(Mg) and LiH(In) changed after irradiation, the predominant red being transformed into a blue one, the degree of the change depending on the exciting wavelength. After irradiation of LiH(Pb), the position and the shape of the band remained unchanged; the change was observed.

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at the integral intensity only. The intensity of the red luminescence decreased sharply with increasing irradiation dose. The degree of this change depended on the activator, and it increased in the sequence: In, Mg, Sn, and Pb (the stability of the crystals towards light decreased). The intensity of the yellow band in LiH(Mg) changed analogously. The intensity of the blue luminescence band of the majority of the studied crystals changed very little with increasing radiation dose, with the exception of some crystals of LiH(In) and LiH(Mg), where the intensity of the blue band rose with the irradiation dose. The weakening of the intensity of the red and yellow luminescence was attributed to the origin of strong absorption bands in the red or yellow region, accompanied by the simultaneous destruction of the red and yellow luminescence centers, a result of the irradiation process. The increase in the blue luminescence was explained by the formation of new luminescent centers, due to the interaction of the surface of the crystals with the surrounding atmosphere. This interaction proceeds much faster during irradiation than during its absence.

E. Svatek

19810578

1/2 015

UNCLASSIFIED
TITLE--SPECTRAL STUDIES OF THE INTERMOLECULAR INTERACTION OF NITROBENZENE
WITH P ANISIDINE, DIPHENYLAMINE, AND DIPHENYLETHANE -U-
AUTHOR--(02)-GAVRILOV, G.A., KUZMENOK, I.P.

PROCESSING DATE--23OCT70

COUNTRY OF INFO--USSR

SOURCE--IZV. VYSSH. UCHEB. ZAVED., FIZ. 1970, 13(2), 119-21

DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--NITROBENZENE, DIPHENYLAMINE, UV SPECTRUM, COMPLEX COMPOUND,
AMINE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--2000/0789

STEP NO--UR/0139/70/013/002/0119/0121

CIRC ACCESSION NO--AP0124458

UNCLASSIFIED

2/2 015

UNCLASSIFIED

PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0124458-
ABSTRACT/EXTRACT--(U) GP-0-

ABSTRACT. THE UV SPECTRA OF PHNO SUB2 (I) WITH P. ANISIDINE (II), PH SUB2 NH (III) AND PH SUB2 CH SUB2 (IV) IN ETOH WERE STUDIED OVER 210-330 NM. NO INTERACTION WAS FOUND FOR I-IV SOLNS., BUT, BASED ON INCREASE IN OPTICAL D. COMPARED WITH ADDITIVE SPECTRA OF COMPONENTS, COMPLEX FORMATION OF THE DONOR ACCEPTOR TYPE BETWEEN THE NITRO AND AMINO GROUP WAS OBSD. FOR I-II AND I-III SOLNS. FOR I-II, A 1:1 AND FOR I-III A 2:3 COMPLEX IS FORMED, WITH THE EQUIL. CONSTS. 0.7-1.2 0.4 L.-MOLE, RESP. FACILITY: ROSTOV. NA DONU INST. INZH. ZHELEZNODUROZH. TRANSP., ROSTOV ON DON, USSR.

UNCLASSIFIED

USSR

UDC 669.27/28-174

YEVSTYUKHIN, A. I., LEONT'YEV, G. A., NECHAYEV, V. V., and GAVRILOV, I. I.

"Development of a Continuous Process for Production of Monocrystalline Wire From Tungsten and Molybdenum"

Monokristally Tugoplavkikh i Redkikh Metallov [Single Crystals of Refractory and Rare Metals -- Collection of Works], Nauka Press, 1971, pp 42-47

Translation: A method is described for production of monocrystalline molybdenum and tungsten wires up to 0.2 mm in diameter by performing collective recrystallization using a specially designed apparatus. As the initial material, ordinary technical wires of Type VA-3 were used. The wires produced served as substrates for growing of larger single crystals of molybdenum and tungsten by thermal dissociation of chlorides. X-ray structural and metallophysical studies of the monocrystallized wire and the precipitates produced were performed. 6 Figures; 5 Bibliographic References.

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GAVRILOV, G. A.

The practical applications of holography are so varied that it does not seem possible to examine them all in a single article. Therefore we will dwell on some of the most urgent fields, where the most characteristic properties of the holographic method are used.

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Holography is a universal method of registering and recording wave fields for the purpose of revealing necessary information both the object which is the source of radiation and about the character of the wave field.

The idea of the holographic method of recording and recording images was first expressed in 1948 by the English scientist D. Gabor, who received the 1971 Nobel Prize in Physics for that discovery. In the Soviet Union the first work on holography was done by Yu. N. Denisyuk in the period from 1968 to 1972.

A contribution to the development of the holographic method was made by the work of G. A. Gavrilov, A. M. Prokhorov and G. Rosen, which led to the creation of a powerful method of coherent radiation -- the laser. That discovery permitted the American scientists E. Lohr and U. H. H. to obtain in 1962 the first laser holograms of diffusely reflecting objects.

Interest in holography has sharply grown all over the world in recent years. This is explained by the fact that its methods, or permits obtaining necessary results more simply and effectively than by other methods.

Article by Corresponding Member of the AS USSR L. D. Gavrilov, Doctor of Physical and Mathematical Sciences, S. N. Gurevich, and G. A. Rosen, Academy of Sciences of the USSR, Moscow, U.S.S.R., 1972, No. 4, p. 201.

UDC 621.372.6

1972 11.21

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OPRS 57184
18X10 70

USSR

UDC: 539.92.04

GOL'DANSKIY, V. I., DZANTIYEV, B. G., POPOV, V. N., and GAVRILOV, K. A.

"Chemical-Radiation Action of Accelerated Multicharge Ions on Gaseous Nitrogen-Containing Systems"

Moscow, Atomnaya Energiya, No. 3, 1971, pp 262-266

Abstract: The purpose of this paper is to help clarify the effect of changes in the linear energy transmission on the chemical-radiation output in chemiconuclear synthesis. An experiment designed to fulfill this purpose is explained in the article; it involves heavy accelerated multicharge ions such as C^{+6} , N^{+7} , and O^{+8} with a full energy in the range of 84-280 Mev, acting on such gases as NO_2 in a system of $N_2 + O_2$, N_2H_4 in ammonia, and HCN in a system of $N_2 + CH_4$. The gases were in motion, flowing at a rate of 100-500 liters per hour. The volume of the ion beam was substantially smaller than the volume of the reactor. Details of the experiment are given, together with drawings of the entire apparatus in schematic form and a cross-section of the reactor. The ions were ac-

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GOL'DANSKIY, V. I., et al, Atomnaya Energiya, No. 3, 1971, pp 262-266

celerated in the cyclotron of the Joint Institute of Nuclear Research laboratory, and curves of the chemical-radiation output as a function of the ion charge, the temperature, and the gas flow velocity are given. The authors express their gratitude to G. N. Flerov for his interest in the work.

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USSR

UDC: 621.391:519.2

GAVRILOV, L. P.

"On the Accuracy With Which Functions of a Single Variable are Approximated by a Series of Square Pulse Fractions"

Sb. nauchn. tr. Vladimir. politekhn. in-t (Collected Scientific Works of Vladimir Polytechnical Institute), 1970, vyp. 10, pp 82-84 (from RZh-Radiotekhnika, No 1, Jan 71, Abstract No 1A58)

Translation: The author discusses problems of accuracy in approximating functions of a single variable by a sequence of square pulse fractions with constant maximum deviation and constant maximum relative deviation on each segment of the approximation. An example is given. Four illustrations. Resumé.

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USSR

UDC 534.7

GAVRILOV, L. R., GERSHUNI, G. V., IL'INSKIY, O. B., POFOVA, L. A.,

"Stimulation of Human Peripheral Nerves by Focused Altrasound"

Moscow, Akusticheskiy Zhurnal, No 4, 1974, pp 519-523

Abstract: Stimulation of the fingers, palm, and lower third of the forearm of 5 subjects by focused ultrasound at frequencies of 0.48, 0.887, 1.95 and 3.67 MHz produced 3 types of sensations - tactile, temperature, and pain. The thresholds varied with the type of sensation, being lowest for the tactile sensations. The thresholds rose as the focal range was shifted from the fingers to the palm and then to the forearm. (Ultrasound directed at certain spots on the palm and forearm produced a distinct sensation of cold, an unusual response because it is physically impossible for ultrasound to chill the tissues). The thresholds of the tactile sensations were virtually independent of the duration of exposure to ultrasound lasting 1 to 100 msec. However, they rose considerably when the duration was decreased to 0.1 msec or less. Some suggestions are made for constructing ultrasonic apparatus to be used for stimulating nerve structures.

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USSR

UDC 612.82-089:615.837.3

TYURIN, S. I., BRAZOVSKAYA, F. A., ININ, Yu. S., PAYKIN, D. I., SIROTYUK, M. G.,
and GAVRILOV, L. R., Institute of Higher Nervous Activity and Neurophysiology,
Academy of Sciences USSR, Central Design Bureau, Academy of Medical Sciences
USSR, and Acoustic Institute, Academy of Sciences USSR

"Use of Focused Ultrasound for Local Destruction of Brain Structures Through
Intact Skull"

Moscow, Byulleten' Eksperimental'noy Biologii i Meditsiny, No 5, 1973,
pp 120-121

Abstract: Using a focusing emitter to create an ultrasonic field, the authors
irradiated portions of rabbit brains 16 to 20 mm from the surface in the region
of the hypothalamus and mesencephalon without preliminary trephination. A
single sonication produced a lesion 0.2 to 1 mm in diameter and 1 to 3 mm in
length. No pathological changes were noted on the way to the target area in
which histological examination of frontal sections revealed a focus of coagu-
lation necrosis.

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USSR

UDC 612.85

GAVRILOV, L. R., GERSHUNI, G. V., IL'INSKIY, O. B., SIROTYUK, M. G., TSIRUL'-
NIKOV, Ye. M., and TSUKERMAN, V. A., Laboratory of the Physiology of Hearing,
Institute of Physiology imeni I. P. Pavlov, USSR Academy of Sciences, Labora-
tory of the Physiology of the Sensory Organs, Institute of Evolutionary
Physiology and Biochemistry imeni I. M. Sechenov, Laboratory of General
Physiology of Reception, Institute of Physiology imeni I. P. Pavlov, and
Laboratory of Ultrasonic Cavitation, Acoustics Institute, USSR Academy of
Sciences

"Study of the Skin Sensitivity by Means of Focused Ultrasound"

Leningrad, Fiziologicheskii Zhurnal SSSR imeni I. M. Sechenov, Vol 58, No 9,
1972, pp 1,366-1,371

Abstract: A study was made of the effect of focused ultrasound on the skin of
a human hand. The sensitivity of the skin of the palm surface of the fingers,
wrist and lower third of the forearm was investigated in five people (2 men and
3 women). The sensitivity thresholds were determined with a gradual increase
and decrease in the stimulus. As a rule, the thresholds were higher with an
increase in stimulus. The intensity for which no less than 50% positive re-
sponses occurred to 8-10 stimulations was taken as the threshold. Stimulation
of the skin by identical stimuli with an intensity of 30-500 watts/cm² usually
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GAVRILOV, L. R., et al., Fiziologicheskii Zhurnal SSSR imeni I. M. Sechenov, Vol 58, No 9, 1972, pp 1,366-1,371

aroused a tactile sensation, the nature of which depended on the stimulated section. When the focal point went deeper into the tissue, the tactile thresholds gradually increased and, finally, the sensation gradually went away altogether (and then in certain cases reappeared on the opposite side). The effect of sound streams on the occurrence of tactile sensations was tested leading to tickling sensations and sensations of heat and cold. Pain occurred at intensities of 1,400-1,600 watts/cm² lasting 100 milliseconds and more.

The mechanism of the effect of the focused ultrasound and its value in the study of the receptor structures are discussed. All the basic types of feelings in the skin can be isolated by the application of ultrasound.

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Instruments and Equipment

USSR

UDC 612.014.45+612.8

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AVIROM, V. M., ADRIANOV, O. S., VYKHODTSEVA, N. I., GAVRILOV, L. R., MERING, T. A., and SIROTYUK, M. G., Institute of Acoustics, Academy of Sciences USSR, and Brain Institute, Academy of Medical Sciences USSR

"Destruction of Deep-Lying Brain Structures With Focused Ultrasound"

Moscow, Zhurnal Vysshey Nervnoy Deyatel'nosti, No 5, 1971, pp 1,110-1,113

Abstract: An apparatus designed to minimize the loss of ultrasonic energy at high frequencies and intensities of ultrasound is described. It consists of an oscillator, ultrasound emitter, universal standard stereotaxic device to hold the animal, and a device to permit ultrasound to be transmitted to the animal's brain. The focusing emitter rests on a concave resonant plate of piezoelectric ceramic 85 mm in diameter with a focal length of 70 mm. Acoustic energy is transmitted from the emitter to the brain through degassed water (or physiological saline). Degassed water is poured into a rubber bottle connected to the frame of the emitter and inot a small funnel attached to the animal's head. The article concludes with a description of the surgical technique recommended for preparing the brains of rabbits and rats prior to ultrasonication.

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USSR

UDC 534.292

CAVRILOV, L. R., Acoustics Institute, Academy of Sciences USSR, Moscow

"Application of High-Intensity Focused Ultrasound for Local Action on Organism Tissues"

Moscow, Akusticheskiy Zhurnal, Vol 17, No 3, Jul/Aug/Sep 71, pp 337-355

Abstract: Domestic and foreign literature on the effect of high-intensity focused ultrasound on human and animals tissues and the prospects for its use in practical medicine is reviewed. Methods of focusing ultrasound and designs of different apparatuses used for sound emission; acoustic parameters of the tissues; control of the intensity and dosage of ultrasound; methods of achieving desired local disintegration in deep tissue structures by means of focused ultrasound; and the physical mechanism of tissue disintegration by ultrasound are discussed in the article.

Although many of the important aspects relating to the effect of high-intensity focused ultrasound on the deeper tissue structure have not yet been clarified and require further investigation, attempts have already been made with some success to apply such ultrasound in clinical practice. It has been found useful in the treatment of different neurological disturbances in man, alleviating the symptoms of Parkinson's disease, alleviating pain due to amputations, treatment of subcutaneous neuromas, in ophthalmology when used in

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USSR

GAVRILOV, L. R., Akusticheskiy Zhurnal, Vol 17, No 3, Jul/Aug/Sep 71, p 337-355
surgical treatment of retinal detachment, and when used to control malignant
tumors. However, the multiplicity of unknown factors relating to the effect
of focused ultrasound on the organism's tissues, such as the physical mechanism
of tissue disintegration caused by the sound, intensities and dosages of
tissue disintegrating and nondisintegrating ultrasound, and many others make
the extensive application of high-intensity focused ultrasounds in practical
medicine inadvisable.

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USSR

UDC: 577.4

GAVRILOV, M. A., DEVIATKOV, V. V., POTEKHIN, A. I., CHICHKOVSKIY, A. B.,
POPYREV, Ye. I.

"Technical Requirements for an Automated System for Logical Synthesis of Discrete Controlling Devices. Using Procedures of Dialog With a Computer in Synthesizing Such Devices. By Way of Discussion"

Inform. materialy. Nauch. sovet po kompleks. probl. "Kibernetika" AN SSSR
(Informational Materials. Scientific Council on the Complex Problem of
Cybernetics, Academy of Sciences of the USSR), 1971, No 7(54), pp 62-112
(from RZh-Kibernetika, No 5, May 72, Abstract No 5V325)

[No abstract]

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USSR

GAVRILOV, M. A., OSTIANU, V. M., LYAKHOVICH, V. F.

"The Status of the Theory of Construction of High-reliability Relay Devices as of the Beginning of 1970"

Abstraktn. i Struktur. Teoriya Releyn. Ustroistv. [Abstract and Structural Theory of Relay Devices -- Collection of Works], Moscow, Nauka Press, 1972, pp 113-128 (Translated from Referativnyy Zhurnal, Kibernetika, No 1, 1973, Abstract No 1 V632).

Translation: A review article. 177 Biblio. Refs.

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USSR

GAVRILOV, M. A., KOPYLENKO, V. M.

"The Method of "Transition Tables" for Synthesis of Multiple-Output Combination Structures of Arbitrary Elements"

Abstraktn. i Struktur. Teoriya Releyn. Ustroistv. [Abstract and Structural Theory of Relay Devices -- Collection of Works], Moscow, Nauka Press, 1972, pp 7-32 (Translated from Referativnyy Zhurnal, Kibernetika, No 1, 1973, Abstract No 1 V613 by the authors).

Translation: A procedure of directed search is based on application of special criteria allowing variables to be found which are closest to the assigned function, considering actual limitations as to number of inputs, number of branches of outputs, connections of elements with each other, etc.

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1/2 035
UNCLASSIFIED
TITLE--COMBINED INFLUENCE OF PULSATING STRAIN AND STATIC TORSION ON THE
CORROSION FATIGUE STRENGTH OF STEEL -U-
AUTHOR--(02)-KHARITONOV, A.N., GAVRILOV, M.P.
PROCESSING DATE--27NOV70
COUNTRY OF INFO--USSR
SOURCE--FIZ.-KHIM. MAKH. MATER. 1970, 6(1), 110-11
DATE PUBLISHED-----70
SUBJECT AREAS--MATERIALS, MECH., IND., CIVIL AND MARINE ENGR
TOPIC TAGS--CORROSION FATIGUE, METAL AGING, ALLOY DESIGNATION, MEDIUM
CARBON STEEL, FATIGUE STRENGTH, STRAIN, TORSIONAL STRENGTH, TORSION
STRESS, CORROSION RESISTANCE, PULSE RATE/(0)50 MEDIUM CARBON STEEL
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--3001/0328
STEP NO--UR/0369/70/006/001/0110/0111
CIRC ACCESSION NO--AP0126084
UNCLASSIFIED

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UNCLASSIFIED

PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AP0126084

ABSTRACT/EXTRACT--(U) GP-0-

ABSTRACT. ON THE BASIS OF AN ANAL. OF
VECTORS OF SIMULTANEOUSLY ACTING FORCES, IT IS CONCLUDED THAT THEY DO
NOT MATERIALLY AFFECT THE CORROSION AGING RESISTANCE OF STEEL 50.

FACILITY: TUL. POLITEKH. INST., TULA, USSR.

UNCLASSIFIED

USSR

ANOSOV, V. V., et al., Atomnaya Energiya, No 6, Dec 71, pp 633-635

185 and 238 keV regions. The divergence between radiometric and chemical analysis of uranium and thorium for specimens with a uranium content of 0.1-1.4 g/l and thorium of 0.08-0.5 g/l is no more than $\pm 10\%$ when radioactivity is measured in the 93 and 238 regions of the spectrum. The results of radiometric determination are not affected by the presence of zirconium, rare earths or other elements which complicate chemical analysis. Radiometric determination with a single-channel analyzer is approximately four times as productive and considerably less expensive when compared with chemical determination. One figure, one table, bibliography of three titles.

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USSR

UDC 545.52:546.791+546.841

ANOSOV, V. V., GAVRILOV, N. I., SMELKOVA, T. P.
APPROVED FOR RELEASE: 09/19/2001 **CIA-RDP86-00513R002200910003-4"**
"Simultaneous Radiometric Determination of Uranium and Thorium
in Sulfate Solutions"

Moscow, Atomnaya Energiya, Vol 31, No 6, Dec 71, pp 633-635

Abstract: A method is developed for simultaneous determination of uranium and thorium in sulfate solutions by gamma spectrometric measurement without complicated chemical processing of the specimens. The standard for gamma-emission by uranium is a solution of uranyl nitrate in weak hydrochloric acid, and the thorium standard is prepared by dissolving thorium in sulfuric acid. The sensitivity threshold for 100-cc specimens with a measurement time of 10 minutes in each spectrometer channel is 0.015 g/l for uranium, and 0.01 g/l for thorium when the measurements are made in the 93 and 238 keV regions of the gamma spectrum, and 0.04 g/l for uranium and 0.01 g/l for thorium when measurements are made in the

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Vacuum Tubes

USSR

UDC 621.385

GAVRILOV, N.M.

"High-Frequency Focusing Of Electrons In An Electron-Ion Beam"

V sb. Uskoriteli (Accelerators--Collection Of Works), No 12, Moscow, Atomizdat, 1970, pp 138-143 (from RZh--Elektronika i yeye primeneniye, No 10, October 1970, Abstract No 10A33)

Translation: An analytical solution is approximated for the problem of determining the magnitude of an electronic current which is focused by a traveling electromagnetic wave in a spiral system for accelerating proton clusters. The "hard" stream of electrons considered serves for focusing of the protons which are accelerated, and its electrons have a greater velocity than the velocity of the protons and of the traveling wave. The solution is sought with the aid of matrixes and equations for the motion of electrons in an approximation of the average phase of the focusing and defocusing half-periods of the wave, neglecting the interaction of the electrons with the protons and neglecting the relativistic constriction of the protons. It is found that the magnitude of the focusing current increases with growth of the value of the intensity of the high-frequency electrical field of the wave, the larger the more the phase velocity of the wave. A physical interpretation is given of the results obtained, and suggestions are made on the possible use of the process investigated, the equivalent of hard focusing of a beam of electrons. 5 ref. D.Ya. 1/1

USSR

UDC 621.385.019.3

GAVRILOV, O.A., FEDOROV, V.G.

"Forecasting Of The Individual Longevity Of Microwave Electrovacuum Devices With The Aid Of Regression Equations"

Elektron. tekhnika. Nauchno-tekhn. sb. Elektron. SVCh (Electronic Technology. Scientific-Technical Collection. Microwave Electronics), 1970, No 7, pp 120-131 (from RZh--Elektronika i yeye primeneniye, No 11, November 1970, Abstract No 11A113)

Translation: A method of forecasting of the individual longevity of microwave electrovacuum devices is described, which is based on locating with the aid of the methods of regression analysis of certain parameters of a conditional function for the probability density of longevity. An evaluation is given of the precision and reliability of forecasting as a function of the size of the sample in preliminary tests and the number considered during forecasting of the parameters. A method is proposed for selection of the most informative parameters. The results are presented of forecasting with the use of a digital computer of the individual longevity of metrons. Summary.

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USSR

UDC 621.396.6--181.5 (083.8)

BARANOV, A.I., DATSKIURI, V.D., VOSKRESENINOV, I.I., GAVRILOV, R.A., GARYAICHIN, V.P., GOLUBTSOV, M.S., ZAMIKHOVSKIY, M.B., ZALITSKIY, A.I., ELOTIN, V.A., KAZATSKER, L.I., LAGUTAIN, G.V., LARIONOV, YU. S., PREOBRAZHENSKIY, S.P., TALAIN, D.L., RAMENSKIY, I.V., SIMONOVA, I.S., TIKHOMIROV, B.G., FISHEL', I.SH., SHULENT, M.M.

"Device For Deposition Of Multilayer Coverings In A Vacuum"

USSR Author's Certificate No 279291, filed 16 June 68, published 30 Nov 70 (from RZh--Radiotekhnika, No 9, Sep 1971, Abstract No 9V272P)

Translation: A device proposed for deposition of multilayer coverings in a vacuum is fulfilled in the form of a number of successively mounted independent operating chambers supplied with evaporators, heaters, and an exhaust system. The device contains a mechanism for transporting substrates, a mechanism for loading and unloading, and a drive mechanism. With the object of increasing the reliability of the device and improving the quality and reproducibility of the coverings deposited, outside of the area of the arrangement of operating chambers and parallel to it a supplementary vacuum chamber is installed, which serves for the deposition in it of the transporting mechanism, and which communicates with each of the operating chambers by means of vacuum-overlapping transfer windows located on the side wall

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USSR

BARANOV, A. I., et al., USSR Author's Certificate No 279291, filed 16 June 68, published 30 Nov 70 (from RZh--Radiotekhnika, No 9, Sep 1971, Abstract No 9V272P)

of the supplementary chamber at places for connection to it of the operating chambers. Each of the operating chambers or a group of them is provided with an individual system of high-vacuum pumping.

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USSR

UDC: 621.396.6-181.5(088.8)

GAVRILOV, R. A., REPIN, V. V., ALEKHIN, M. I., BOGACHEV, N. M.

"A Device for Transport and Registration of Substrates and Masks"

USSR Author's Certificate No 268523, filed 27 May 68, published 14 Aug 70
(from RZh-Radiotekhnika, No 6, Jun 71, Abstract No 6V243 P)

Translation: A device is proposed for transport and registration of masks and substrates for making thin-film microcircuits. The device contains substrate holders and mask holders which are connected to the drive mechanism and located on transporting discs. The holders are equipped with centering mechanisms such as pins and sockets, and with heating and cooling elements. To simplify the design of the device and improve the quality of the microcircuits, the mask holder is made in the form of a conical rectangular base with its beveled surfaces resting on the socket of the transporting disc, which is equipped with spring-loaded fingers. The upper face of the substrate holder rests on stationary supports on the transport disc socket, which is also fitted with spring-loaded fingers.

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1/3 026 UNCLASSIFIED PROCESSING DATE--11SEP70
TITLE--STARS UNDER THE ROOFS -U-
AUTHOR--GAVRILOV, S.
COUNTRY OF INFO--USSR
SOURCE--KOMMOL,SKAYA, PRAVDA, JUNE 6, 1970, P 4, COLS 1-6
DATE PUBLISHED--06JUN70
SUBJECT AREAS--SPACE TECHNOLOGY
TOPIC TAGS--SPACECRAFT LAUNCHING, TEST FACILITY/(U)VOSTOK 1 MANNED
SPACECRAFT
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--1987/1127 STEP NO--UR/9007/70/000/000/0004/0004
CIRC ACCESSION NO--AN0104523
UNCLASSIFIED

2/3 026

UNCLASSIFIED

PROCESSING DATE--11SEP70

CIRC ACCESSION NO--AN0104523

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. GENERAL PREFLIGHT TESTS CONSUME EXACTLY THE SAME AMOUNT OF TIME NEEDED FOR THE BURN TO INSERT THE ROCKET INTO THE ORBIT. IT DOES NOT INCLUDE THE TIME NEEDED TO READY THE LAUNCH COMPLEX SYSTEMS NOR THE TIME THEY PERFORM DURING THE LAUNCH. TELEMETRY FILMS ARE DEVELOPED AND VIEWED, AND READINESS OF THE LAUNCH COMPLEX AND ROCKET IS REPORTED TO THE STATE COMMISSION. THE LAUNCH SEQUENCE IS AGAIN REHEARSED AT THE MEETING OF THE STATE COMMISSION WITH DESIGNERS OR REPRESENTATIVES OF PRODUCERS ATTENDING. THE ARTICLE ALSO GIVES THE ACCOUNT OF THE 15 MINUTE PRELAUNCH COUNTDOWN ANNOUNCED BY ALEKSANDR IVANOVICH, THE LAUNCH DIRECTOR. DURING THIS PHASE THE LAUNCH CREW LEFT THE LAUNCH SITE, THE SERVICE GANTRIES WERE ROLLED BACK, AND THE FIVE CREWS ASSUMED READINESS. AFTER THAT, ONE MINUTE COUNTDOWN WAS ANNOUNCED, FOLLOWED BY THE "READY SWITCH FOR LAUNCH PREPARATION", KLYUCH NA START, COMMAND. IT WAS ACKNOWLEDGED BY THE OPERATOR AND FOLLOWED BY THE "LAUNCH PREPARATION" COMMAND. WHEN THE LATTER WAS ACKNOWLEDGED, AND THE SIGNS "READY SWITCH FOR LAUNCH PREPARATION" AND "LAUNCH PREPARATION" WENT ON THE INSTRUMENT PANELS, THE LAUNCH DIRECTOR GAVE THE "READY SWITCH FOR LAUNCH", KLYUCH NA PUSK, COMMAND. AFTER THIS COMMAND WAS ACKNOWLEDGED BY THE OPERATOR AND THE LIGHT SIGN WENT ON, THE ROCKET STOPPED SMOKING, THE VENTING VALVES OF THE OXIDIZER CLOSED, AND THE FEEDER SYSTEM WAS AUTOMATICALLY CUT OFF. AT THIS MOMENT THE "LAUNCH", PUSK, COMMAND WAS GIVEN. IT WAS FOLLOWED BY REPORTS SUCH AS "CABLE TOWER ROLLING BACK, OK", AND "INJECTORS, OK". FROM THE TIME THE CABLE TOWER WAS ROLLED BACK, THE ROCKET WAS HELD ON THE PAD ONLY BY ITS OWN WEIGHT.

UNCLASSIFIED

3/3 026

UNCLASSIFIED

PROCESSING DATE--11SEP70

CIRC ACCESSION NO--AN0104523

ABSTRACT/EXTRACT--THE NEXT REPORT SOUNDED WAS "IGNITION", ZAZHIGANIYE, FOLLOWED BY THE "PRELIMINARY" WHICH STARTED THE PROPELLANT TURBOPUMP UNIT. AFTER THE SPECIFIED NUMBER OF REVOLUTIONS WAS ATTAINED, THE "MAIN" REPORT WAS SOUNDED. IT WAS FOLLOWED BY THE "LIFT OFF", POD, YEM,.

UNCLASSIFIED

Acc. Nr.: AN 0104531

Ref. Code: UR 90

AUTHOR-- GAVRILOV, S.

TITLE-- STARS UNDER THE ROOFS

NEWSPAPER-- KOMSOMOL, SKAYA PRAVDA, JUNE 2, P 6, COLS 1-6,
JUNE 4, P 4, COLS 5-7, JUNE 5, P 4, COLS 1-6,
JUNE 9, P 3, COLS 1-5, AND JUNE 10, P 3, COLS 1-6
/ABSTRACTER'S NOTE-- THE JUNE 6 ISSUE HAS NOT
BEEN RECEIVED/

ABSTRACT-- THE SIX-INSTALLMENT ARTICLE IS AN EXCERPT FROM A BC
"HERE IS MY HEART", AUTHORED BY SVYATOSLAV GRIGORYEVICH GAVRILOV
WHO PARTICIPATED IN PLANT TESTS OF VOSTOK BOOSTER ROCKETS AND SF
VEHICLES. BORN IN BELORUSSIA, GAVRILOV TOOK PART IN THE SECOND
WORLD WAR FIRST IN THE ARMY, LATER IN THE AIR FORCE AND, AFTER
SUFFERED A SERIOUS WOUND, IN THE CORPS OF ENGINEERS /SAPERY/.
FATHER WAS KILLED IN THE SECOND WORLD WAR AND HE HAD TO TAKE THE
RESPONSIBILITY OF BRINGING UP HIS FIVE YOUNG SIBLINGS.

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REEL/FRA

19871143

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Acc. Nr.: AN0104531

MENTIONED AS HIS ASSOCIATES ARE-- IGOR MAREV, A TEST ENGINEER, SOMEONE MENTIONED ONLY AS VLADIMIR IOSIFOVICH, PETROV, WHO APPARENTLY WAS RESPONSIBLE FOR "LANDING" DURING VOSTOK BOOSTER TESTS, ALEKSEY IVANOV, A LEADING DESIGNER OF THE VOSTOK SHIP, AND VOLODYA ORLANOV.

HIS FIRST TIME AT THE PLANT, GAVRILOV WORKED UNDER MAREV. PREVIOUS TO THAT HE HAD SOME EXPERIENCE IN TESTING AIRCRAFT EQUIPMENT.

GAVRILOV CLAIMS THAT BOOSTER TESTS AT THE ASSEMBLY PLANT AT THE LAUNCHING SITE DIFFER LITTLE FROM THE PLANT TESTS. HE, HOWEVER, MAKES A POINT OF THE LONG /SEVERAL THOUSAND KILOMETERS/ JOURNEY THE BOOSTER ROCKETS HAVE TO MAKE BY TRAIN THAT CAN BE RESPONSIBLE FOR VARIOUS MALFUNCTIONS OR FATIGUE FAILURES.

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REEL/FRAME

19871144

Acc. Nr.: ANO104531

IT APPEARS THAT THE PLANT DESCRIBED BY GAVRILOV MANUFACTURED BOOSTER ROCKETS, SPACE VEHICLES, AND INDIVIDUAL ASSEMBLIES AND COMPONENTS.

ACCORDING TO THE ARTICLE, THE FIRST "VOSTOK" HAD NO PARACHUTE SYSTEM AND ITS LANDING CAPSULE HAD NO HEAT-RESISTANT COATING, FOR IT CARRIED ONLY A DUMMY. IT NEVER LANDED BUT ASSUMED A NEW ELLIPTICAL ORBIT DUE TO THE MALFUNCTION OF AN OUTSIDE SENSOR, A COMPONENT OF THE ORIENTATION SYSTEM.

PREPARATORY WORK ON THE SECOND "VOSTOK", THE ONE THAT CARRIED ANIMALS, CONSUMED TWO MONTHS.

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REEL/FAME

19871145

USSR

UDC 623.983:621.395

CAVRILOV, S. F., SHAVLOVSKAYA, N. I.

"Hydroacoustic Oscillation Rate Detector"

USSR Author's Certificate No 273556, filed 20 Jan 69, published 19 Nov 70
(from RZh-Elektronika i yeye primeneniye, No 8, August 1971, Abstract No
8A447P)

Translation: A device is proposed which can be used during construction of a deep-water hydroacoustic oscillation rate detector. In order to increase its sensitivity, the movable housing is in the form of watertight shell of spherical form with a connecting piece open at the top, and the immovable part of the signal pickup is rigidly secured to a rod fulfilled along with the housing of the acoustic-transparent stream-lined unit and passing through the connecting piece into the movable housing. During immersion in water, the stream-lined unit under the effect of hydrostatic pressure is filled with water to a specific level, above which an air cavity is formed. Meanwhile the movable housing of the detector is found to be almost completely immersed in the water with the exception of the upper part of the connecting piece communicating with the air cavity. Because the movable housing together with the elements rigidly secured to it has zero or positive buoyancy and
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USSR

GAVRILOV, S. F., SHAVLOVSKAYA, N. L., USSR Author's Certificate No 273556, filed 20 Jan 69, published 19 Nov 70. (from RZh-Elektronika i yeye primeneniye, No 8, August 1971, Abstract No 8A447P)

its size is considerably smaller than the length of the wave, then, under the influence of the sound wave, it performs oscillations in a horizontal plane together with the particles of the environment. According to the degree of immersion of the detector, the exterior hydrostatic pressure on the movable housing is automatically balanced by the pressure of the air from within the housing, entering there through the connecting piece. The scheme of the device is given. I ill. L. K..

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USSR

UDC 669.71.042.6

MIKHAYLOV, K. N., GAVRILOV, S. S., VASILEVSKIY, A. M., MARCHENKO, A. M.,
FOL'KHIN, G. D., and PEGHENEV, V. S.

"Casting of Ingots of Aluminum Alloys in Multiple-Crystallizer Systems"

Tekhnol. legkikh splavov. Nauchno-tekhn. byul. VILSa [Technology of Light
Alloys. Scientific and Technical Collection of All-Union Institute of
Light Alloys], No. 4, 1970, pp. 30-34, (Translated from Referativnyy
Zhurnal-Metallurgiya, No. 1, 1971, Abstract No. I G113 by G. Svodtseva).

Translation: A 24-crystallizer system for casting of aluminum alloy ingots
112, 145, and 165 mm in diameter on a single casting machine from a single
tap hole has been developed and tested in order to increase the productivity
of labor and casting equipment. A diagram and drawing of the installation
are presented. 3 illustrations.

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USSR

UDC 576.858.25.097.2.083.3

LOGINOVA, N. V., NARODITSKIY, B. S., and GAVRILOV, V. I., Institute of Virology imeni D. I. Ivanovskiy, USSR Academy of Medical Sciences, Moscow

"A Simple Method for the Concentration of Tissue Culture Antigen of Japanese Encephalitis"

Moscow, Voprosy Virusologii, B No 4, 1973, pp 494-496

Abstract: Tests were conducted on the feasibility of using polyethylene glycol (PEG) to concentrate Japanese encephalitis (JBE) and West Nile Fever viruses. The viruses were grown in chick embryo cells maintained in medium 199 containing 10% bovine serum. The culture fluid was centrifuged for 1 h at 10,000 g at 4°C to remove cellular detritus. The pH of the supernatant liquid was adjusted to 7.8 with sodium bicarbonate and NaCl was added to 0.5 M concentration. This was followed by the addition of 6,000 MW PEG to 8-9% and storage at 4°C for 1 to 24 h. Centrifugation for 1 h at 10,000 g yielded a sediment which was dissolved in 1-2 ml borate buffer, pH 9.0, containing 0.4% BSA and tested for hemagglutination. JBE was found to be concentrated 50-70-fold after storage at 24 h; significant concentration was also evident after 1 h. Concentration of West Nile virus was less effective and amounted to 8-16-fold concentration, presumably due to aggregation of the virus. PEG thus offers an easy method for concentrating JBE in tissue culture supernatants.

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Molecular Biology

USSR

UDC 616.988.25-092.4-07:616-003.939.633.2-092.18-

07

ZHDANOV, V. M., GAVRILOV, V. I., KLEMENKO, S. M., BOGOMOLOVA, N. N., and ANDZHAPARIDZE, O. G., Institute of Virology imeni D. I. Ivanovskiy, Academy of Medical Sciences USSR, and Institute of Viral Preparations, Ministry of Public Health USSR, Moscow

"Chronic Infection of Cell Cultures by Tick-Borne Encephalitis Virus: Ribonucleoprotein Structures in Cells"

Moscow, Voprosy Virusologii, No 1, 1973, pp 17-23

Abstract: Labeled RNA precursors were added to HEp-2-Sof cell cultures chronically infected with tick-borne encephalitis virus, in which cellular RNA synthesis was suppressed antibioticly, to determine the location and nature of viral products. Virus-specific ribonucleoprotein was found to concentrate in mitochondrial membrane fractions. Two forms with 160S and 140S sedimentation constants were detected by sucrose gradient analysis. Densities were 1.33 and 1.42 gm/ml respectively in cesium chloride gradients. Electron microscope investigation indicated that the structures were threads 2.4-2.9 microns long, and 50 Å and 30-40 Å wide respectively. Threads of intermediate sizes were also detected. These data suggest that these are viral genomes. It is

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ZHDANOV, V. M., et al., Voprosy Virusologii, No 1, 1973, pp 17-23

concluded that chronically infected host cells inhibit production of mature virions but have less effect on genomes. What supports viral persistence and which structures make possible infection of newly divided cells remains unanswered.

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USSR

UDC 576.858.25.083.35.095.383.098.396.332

ZHDANOV, V. M., BOGOMOLOVA, N. N., GAVRILOV, V. I., and ANZHAPARIDZE, O. G.,
Institute of Virology imeni D. I. Ivanovskiy, Academy of Medical Sciences USSR,
and Institute of Viral Preparations, Ministry of Public Health USSR, Moscow

"Chronic Infection of Cell Cultures by Tick-Borne Encephalitis Virus:
Description of Ribonucleic Acid

Moscow, Voprosy Virusologii, No 1, 1973, pp 23-27

Abstract: Viral RNA produced in SPEV cells (acute infection) and HEp-2-Sof cells (latent infection) infected by tick-borne encephalitis virus was compared. Viral RNA of both culture types was identical with sedimentation constants ranging from 16S to 26S 1 hour after infection (peak at 20-22S) and 45S 5 hours after infection. The 16S-26S RNA, which was partially resistant to RNAase, is considered to be an intermediate form, while the 45S RNA was incorporated into ribonucleoprotein structures. Comparison with data on Venezuelan equine encephalitis virus showed that the studied virus is somewhat larger, with a molecular weight of about 3.2 million daltons.

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USSR

UDC 547.242

GAVRILOV, V. I., KHLEBNIKOV, V. N., GAVRILOVA, G. R., and CHERNOKAL'SKIY, B. D.,
Kazan' Chemical-Technological Institute Imeni S. M. Kirov

"Synthesis of 10-Alkylphenoxyarsines"

Leningrad, Zhurnal Obshchey Khimii, Vol 42 (104), No 9, Sep 72, pp 1963-1966

Abstract: A series of new 10-alkylphenoxyarsines was synthesized by reacting appropriate alkylmagnesium halides with 10-chlorophenoxyarsine in benzene or toluene solution. Following compounds were obtained and characterized: 10-propyl-, isopropyl-, n-butyl-, 2-methylpropyl-, tert-butyl-, n-amyl-, 3-methylbutyl-, n-hexyl-, n-heptyl-, n-octyl-, cyclohexyl-, allyl-, benzyl-, and phenylacetylenylphenoxyarsines.

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USSR

UDC 616.988.25-092.4-085.373.3

AZADOVA, N. B., ZHDANOV, V. M., KOPEL'MAN, R. N., and GAVRILOV, V. I., Institute of Virology imeni D. I. Ivanovskiy, Academy of Medical Sciences USSR, Moscow

"Virological Characteristics of Infection in the L Cell-Sindbis Virus System in the Presence of Antiviral Serum"

Moscow, Voprosy Virusologii, No 5, Sep/Oct 72, pp 520-523

Abstract: Persistent infection in the L-SV system (multiplicity of infection 0.01 PFU/cell) in the presence of 0.5% of specific antiviral serum was characterized by alternating phases of degeneration and proliferation during the first three passages, with virus and hemagglutinin present in the culture medium. During the remainder of the 90-day long period of observation, proliferation predominated, the hemagglutinin titer fell to a low level, and the virus was frequently absent. This suggested marked inhibition of virus synthesis. However, immunomorphological investigations revealed active synthesis of two structural proteins of Sindbis virus -- ribonucleoprotein and lipoprotein membrane antigen -- in 70% of the cells. It is concluded that a persistent infection which causes cellular exhaustion does not arrest synthesis of virus proteins but only prevents the viruses from aggregating and leaving the cells. The infection is transmitted from one passage to another by daughter cells

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USSR

AŽADOVA, N. B., et al., Voprosy Virusologii, No 5, Sep/Oct 72, pp 520-523

which acquire the virus during cell division. It is possible that defective viruses develop during the process, which are able to survive in the cells but unable to leave them.

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USSR

UDC 542.945+542.957.2+547.852.7

KAMAY, G. Kh. [decd.], CHERNOKAL'SKIY, B. D., ~~GAVRILOV, V. I.~~, TSENTOVSKIY, V. M., and TSENTOVSKAYA, V. S.; Kazan' Chemico-technological Institute imeni S. M. Kirov

"Quantitative Separation of the Combined Effect of the Substituent in Para-Substituted 10-Aryl-5,10-Dihydrophenarsazine Oxides"

Kiev, Teoreticheskaya i Eksperimental'naya Khimiya, Vol 8, No 3, 1972, pp 400-402

Abstract: Quantitative evaluation was carried out of the transmission of the effect of the substituent, through the induction and polar conjugation effects, in para-substituted 10-phenyl-5,10-dihydrophenarsazine oxides (I), on the protonation of oxygen at the arsenic atom. By solving the equation correlating the basicity of I with σ^0 and σ_R^+ constants of substituents it was shown that the transmission of the effect of the substituent is effected mainly by the induction effect, with a certain direct polar conjugation of the substituent and the reaction center in the system $(X) - \text{C}_6\text{H}_4 - \text{As} \rightarrow (\text{O})$.

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USSR

UDC 542.945+542.957.2+547.852.7

KAMAY, G. KH. (DECEASED), GAVRILOV, GAVRILOV, V. I., CHERNOKAL'SKIY, B. D.,
Kazan' Institute of Chemical Technology imeni S. M. Kirov

"Basicity of Para-Substituted 10-Aryl 5, 10-Dihydrophenarsazine Oxides"

Leningrad, Zhurnal Obshchey Khimii, Vol 42(104), No 7, Jul 72, pp 1530-1534

Abstract: The ionization constants of seven para-substituted 10-aryl-5,10-dihydrophenarsazine oxides, and their relation to the hammett sigma constants of the substituents were determined. It was shown that when acid acts on 10-p-dimethylaminophenyl-5,10-dihydrophenarsazine oxide in an alcohol-water medium, the As \rightarrow O is protonated first, followed by the nitrogen in the dimethylamino group. 10-p-Fluorophenyl-5,10-dihydrophenarsazine and its oxide were synthesized for the first time.

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USSR

UDC 576.858.75(Ao).073.3

PLESHIVTSEVA, V. V., GAVRILOV, V. I., and MIKHAYLOVA, G. R., Institute of Virology imeni D. I. Ivanovskiy, Academy of Medical Sciences USSR

"Further Study of Cultures of Human Embryonic Skin and Muscle Cells Infected With Influenza Ao (PR8) Virus"

Moscow, Voprosy Virusologii, No 5, 1971, pp 579-586

Abstract: A line of human embryonic skin and muscle epithelial cells (HESM_{ep}) and the biological properties of a variant of the influenza Ao (PR8) influenza virus isolated from HESM-PR8 cultures in the degeneration phase (32nd passage, day 210) were studied. (This virus is designated Ao (PR8)_{hesm}). Attempts to detect influenza virus in transformed HESM_{ep} cultures using a variety of methods (inoculation of chick embryos with culture fluid, intact cells, or cell homogenates followed by blind passages in chick embryos, use of parabiotic cultures of normal and chronically infected cells with a medium containing DEAE-dextran and semicarbazide hydrochloride) were futile. Antibodies to Ao virus could not be found in sera obtained by immunizing white rats with a suspension of HESM_{ep} cells. Cultures of HESM_{ep} cells were sensitive to reinfection with Ao (PR8) and to attenuated strains of poliomyelitis virus types 1, 2, and 3. The

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USSR

PLESHIVTSEVA, V. V., et al., Voprosy Virusologii, No 5, 1971, pp 579-586

Ao (PR8) variant isolated from cultures of HESM-PR8 cells in the phase of marked degeneration differed from the original virus in: (i) lack of pathogenicity for white mice, (ii) the ability to cause productive infection of chick embryo fibroblast cultures and to form plaques on these cultures under the agar overlay, and (iii) greater cytopathogenic activity against human diploid cell cultures. There was no reversion to pathogenicity for mice after a series of intranasal passages in these animals.

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USSR

UDC 542.945+542.957.2+547.852.7

CAVRILOV, V. I., CHERNOKAL'SKIY, B. D., and KAMAY, G. Kh., (deceased), Kazen' Chemical-Technological Institute imeni S. M. Kirov

"Arsenic-Carbon Bond Break in Derivatives of 5,10-Dihydrophenarsazine During Reactions With Hydroiodic Acid"

Leningrad, Zhurnal Obshchey Khimii, Vol 41 (103), No 3, Mar 71, pp 560-564

Abstract: Reaction of 10-alkyl-5,10-dihydrophenarsazine oxides with hydroiodic acid leads to a bond break between arsenic and carbon atom yielding 10-iodo-5,10-dihydrophenarsazine. Hydroiodic acid also breaks down 10-isopropyl-5,10-dihydrophenarsazine oxide yielding diphenylamine. On heating in benzene the diiodides of 10-alkyl(or aryl)-5,10-dihydrophenarsazines are converted to 10-iodo-5,10-dihydrophenarsazines. Reaction of ethyldibromoarsine with 10-ethyl-5,10-dihydrophenarsazine yields 10-bromo-5,10-dihydrophenarsazine.

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USSR

UDC 576.858.25.085.35

GAVRILOV, V. I., LEONT'YEVA, N. A., and FADEYEVA, L. L., Institute of Virology
imeni D. I. Ivanovskiy, Academy of Medical Sciences USSR, Moscow

"Chronic Infection of Cultures of Transplanted RES Cells Caused by Ghta
Arbovirus"

Moscow, Voprosy Virusologii, No 3, May-Jun 70, pp 270-274

Abstract: Chronic infection of a culture of transplanted fetal pig kidney cells was produced by the Ghta arbovirus (strain AMM 2021). During the observation period (302 days), a typical feature in the development of these cultures was the successive alternation of phases of degeneration and repopulation of the cell monolayer. The percentage of infected cells in the repopulation phase, established by the method of infection centers, was 6-7 percent. The proliferative activity of the RES-Ghta cultures was about three times lower than that of normal RES cultures. The chronic infection of the RES-Ghta cultures was accompanied by the production of interferon in the cells. The RES-Ghta cell cultures were resistant to superinfection with homologous virus. An attempt to treat RES-Ghta cultures with hyperimmune specific serum was unsuccessful.

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1/2 006 UNCLASSIFIED PROCESSING DATE--13NOV70
TITLE--REMARKS ON THE RADIUS OF UNIVALENCE OF HOLMORPHIC FUNCTIONS -U-
AUTHOR--GAVRILOV, V.I. 6
COUNTRY OF INFO--USSR
SOURCE--MOSCOW, MATEMATICHESKIYE ZAMETKI (MATHEMATICAL ARTICLES,
COLLECTION OF WORKS), MARCH 1970; PP 295-298
DATE PUBLISHED---MAR 70
SUBJECT AREAS--MATHEMATICAL SCIENCES
TOPIC TAGS--INVERSE PROBLEM, SERIES, ANALYTIC FUNCTION, CIRCLE GEOMETRY
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--3005/1983 STEP NO--UR/0499/70/000/000/0295/0298
CIRC ACCESSION NO--AT0133823
UNCLASSIFIED

2/2 006

UNCLASSIFIED

PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AT0133823

ABSTRACT/EXTRACT--(U) GP-0-

ABSTRACT. SOME SIMPLE REMARKS ARE MADE

REGARDING THE RADIOUS OF UNIVALENCE OF FUNCTIONS HOLOMORPHIC IN THE

CIRCLE MAGNITUDE OF z SMALLER THAN 1 AND THE RADIUS OF ANALYTICITY OF

THE INVERSE FUNCTIONS. THE THEOREMS PROVED ARE SHOWN ON MICROFICHE.

UNCLASSIFIED

1/2 019 UNCLASSIFIED PROCESSING DATE--30OCT70
TITLE--CHRONIC INFECTION OF CONTINUOUS CELL CULTURES, RES, CAUSED BY GHETA
ARBOVIRUS -U-
AUTHOR--(03)--GAVRILOV, V.I., LEONTYEVA, N.A., FADEYEVA, L.L.
COUNTRY OF INFO--USSR
SOURCE--VOPROSY VIRUSOLOGII, 1970, NR 3, PP 270-274
DATE PUBLISHED-----70
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES
TOPIC TAGS--ARBOVIRUS, CONTINUOUS CULTURE, INTERFERON, TISSUE CULTURE
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--2000/1850 STEP NO--UR/0402/70/000/003/0270/0274
CIRC ACCESSION NO--AP0125461
UNCLASSIFIED

2/2 019

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0125461

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A CHRONIC INFECTION OF CONTINUOUS PIG EMBRYO KIDNEY CELL CULTURE CAUSED BY GHETA ARBOVIRUS (AMM 2021 STRAIN) WAS REPRODUCED. DURING THE OBSERVATION PERIOD (302 DAYS) A TYPICAL FEATURE OF EVOLUTION OF THESE LTURES CONSISTED IN SUCCESSIVE ALTERNATION OF PHASES OF DEGENERATION AND REPOPULATION OF THE CELL MONOLAYER. THE PER CENT OF INFECTED CELLS IN THE REPOPULATION PHASE ESTABLISHED BY THE METHOD OF INFECTIOUS CENTERS WAS 6-7. THE PROLIFERATIVE ACTIVITY OF RES-GHETA CULTURES WAS ABOUT 3 FOLD LOWER THAN THAT OF NORMAL RES CULTURES. THE PERSISTENT INFECTION OF RES-GHETA CULTURES WAS UNDERBID BY INTERFERON PRODUCTION BY THE CELLS. THE RES-GHETA CELL CULTURES WERE RESISTENT TO SUPERINFECTION WITH HOMOLOGOUS VIRUS. AN ATTEMPT OF "TREATMENT" OF RES-GHETA CULTURES BY ADDITION OF HYPERIMMUNE SPECIFIC SERUM TO THE CULTURE MEDIUM WAS UNSUCCESSFUL.

FACILITY: INSTITUT VIRUSOLOGII IMENI D. I. IVANOVSKOGO AMN SSSR, MOSKVA.

UNCLASSIFIED

USSR

UDC 576.858.25.095.6.095.18

LEONT'YEVA, N. A., GAVRILOV, V. I., FADEYEVA, I. L., and GALEGOV, G. A., Institute of Virology imeni D. I. ~~Ivanovskiy~~, Academy of Medical Sciences USSR, Moscow

"Stimulation of Gbeta and O'nyong nyong Virus Reproduction by L-Glutamine and Low Concentrations of 5-Bromo-2-Desoxyuridine"

Moscow, Voprosy Virusologii, No 4, Jul/Aug 70, pp 452-456

Abstract: Cultures of BHK-21 cells were grown on Eagle's medium with 10% calf serum and then inoculated with Gbeta or O'nyong nyong virus. Addition to the medium of L-glutamine (500 micro g/ml) or 5-bromo-2-desoxyuridine (20 to 40 micro g/ml) markedly intensified viral reproduction. Despite the different chemical nature of the two substances, their effects were similar and directly related to the time at which they were added. The effect was most pronounced when they were added 2 hours after inoculation of the cultures. The amino acid provided greater stimulation. In the presence of L-glutamine and under optimal conditions, accumulation of Gbeta virus was 2500 times higher and that of O'nyong nyong virus 5200 times higher than in the control. For 5-bromo-2-desoxyuridine under optimal conditions, reproduction of Gbeta and O'nyong nyong viruses was only 250 and 80 times higher, respectively.

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USSR

UDC 547.852.7+542.945+542.957.2

GAVRILOV, V. I., BATINA, L. A., CHERNOKAL'SKIY, B. D., and KAMAY, G. Kh.,
(deceased), Kazan' Chemical-Technological Institute imeni S. M. Kirov

"Reaction of Tertiary Arsine Oxide of the Dihydrophenarsazine Series With
Acids"

Leningrad, Zhurnal Obshchey Khimii, Vol 41 (103), No 3, Mar 71, pp 564-567

Abstract: It was determined that the hydrochloric, hydrobromic and trichloroacetic acids as well as pentachlorophenol form adducts with 10-alkyl-(aryl)-5,10-dihydrophenarsazine oxides (I) in aqueous alcohol medium or in benzene. To a heated ethanol solution of (I) the above reagents were added in 10 ml water; the solution was heated for 15 min, the volume was concentrated to 1/2-1/5 and cooled. A colorless crystalline product was obtained -- the adduct mentioned above --, it was filtered, dried and recrystallized from ethanol. It was also shown that (I) could be titrated with HCl in a mixture of acetic acidacetic anhydride.

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- 40 -

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UDC 517.5

GAVRILOV, V. I.

"Remarks on the Radius of Univalence of Holomorphic Functions"

Moscow, Matematicheskiye Zametki (Mathematical Articles -- Collection of Works),
March 1970; pp 295-298

Abstract: Some simple remarks are made regarding the radius of univalence of functions holomorphic in the circle $|z| < 1$ and the radius of analyticity of the inverse functions. The following theorems are proved:

If the coefficients of the series

$$f(z) = z + a_2 z^2 + \dots + a_n z^n + \dots \quad (1)$$

satisfy the condition

$$|a_n| \leq n \quad (n = 2, 3, \dots), \quad (2)$$

then its sum $f(z)$ and all its partial sums $f_n(z)$ are univalent in the circle $|z| < \tau$, where $\tau(0.125 < \tau < 0.130)$ is the real root of the equation

$$z(1 - r)^3 - (1 + r) = 0 \quad (3)$$

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USSR

GAVRILLOV, V. I., Matematicheskiye Zametki, March 1970, pp 295-298

and the value of τ is the radius of univalence of the function

$$f_{\tau}(z) = 2z - \frac{z}{(1-z)^2} = z - 2z^2 - 3z^3 - \dots \quad (4)$$

If the coefficients of the series (1) satisfy condition (2), then its sum has an inverse function which vanishes when $w = 0$ and is holomorphic in the circle $|w| < \omega$, $\omega = 2\tau - \tau/(1-\tau)^2$, where τ is determined from (3) and the value of ω is the radius of analyticity of the function which is the inverse of the function $f_{\tau}(z)$ defined by (4).

If the coefficients of series (1) satisfy the condition

$$|a_n| \leq c \quad (n = 2, 3, \dots),$$

then its sum has an inverse function which vanishes when $w = 0$ and is holomorphic in the circle $|w| < \omega(c)$, where $\omega(c) = (c+1)[\tau(c)]^2$ and the magnitude of $\omega(c)$ is the radius of analyticity of the function inverse to the function $f_{\tau(c)}(z)$ defined by

$$f_{\tau(c)}(z) = c + (c+1)z - \frac{c}{1-z} = z - cz^2 - cz^3 - \dots$$

1/2 021 UNCLASSIFIED PROCESSING DATE--18SEP70
TITLE--DEVELOPMENT OF A MODEL OF CHRONIC INFLUENZA INFECTION OF A CELL
LINE DERIVED FROM NONPRIMATE ANIMAL -U-
AUTHOR-(03)-GAVRILOV, V.I., SOLOVYEVA, A.I., VYALUSHKINA, S.D.

COUNTRY OF INFO--USSR

SOURCE--VOPROSY VIRUSOLOGII, 1970, NR 1, PP 14-20

DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--CONTINUOUS CULTURE, CELL CULTURE, INTERFERON, INFLUENZA VIRUS,
BIOLOGIC MODEL

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1987/0067

STEP NO--UR/0402/70/000/001/0014/0020

CIRC ACCESSION NO--AP0103747

UNCLASSIFIED

2/2 021

UNCLASSIFIED

PROCESSING DATE--18SEP70

CIRC ACCESSION NO--AP0103747

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. CHRONIC INFECTION OF CONTINUOUS CULTURES OF PIG EMBRYO KIDNEY CELLS (RES) CAUSED BY INFLUENZA A VIRUS (WSN) WAS STUDIED. IN THE FIRST 5 PASSAGES (38 DAYS) THE VIRUS COULD BE DETERMINED IN RESWSN CULTURE FLUID IN TITERS OF $10^6.0$ TO $10^8.7$ ELD SUB50 ONEFOURTH ML. FROM THE 5TH TO THE 16TH PASSAGE THE VIRUS COULD BE DETECTED ONLY BY MEANS OF SUCCESSIVE PASSAGES IN CHICK EMBRYOS, THE ZONE PHENOMENON BEING OBSERVED. AT SOME PASSAGE LEVELS ATTEMPTS TO DETECT VIRUS WERE NEGATIVE. THE LAST DETECTION OF VIRUS WAS SUCCESSFUL IN THE 16TH PASSAGE OF RESWSN CELLS (98TH DAY). FROM THE 17TH PASSAGE ALL ATTEMPTS TO DETECT INFECTIOUS INFLUENZA VIRUS IN RESWSN CELL CULTURE FLUIDS BY MEANS OF SUCCESSIVE PASSAGES IN CHICK EMBRYOS, INOCULATION OF ORGAN CULTURES OF HUMAN EMBRYO LUNGS AND MOUSE EMBRYO LUNGS AND BY MEANS OF MIXED CULTURES OF RESWSN AND RES CELLS, CHICK EMBRYO FIBROBLASTS AND RESWSN CELLS WERE NEGATIVE. NEGATIVE RESULTS OF INTERFERON DETERMINATION IN SPECIMENTS OF TISSUE CULTURE FLUID FROM DIFFERENT PASSAGE LEVELS SUGGEST THAT INTERFERON APPARENTLY PLAYED NO ROLE IN CREATION OF A RELATIVE BALANCE BETWEEN RES CELLS AND INFLUENZA A (WSN) VIRUS. IT IS SUGGESTED THAT THE MAIN REASON OF "SPONTANEOUS" RECOVERY OF RESWSN CULTURES COULD LIE IN AUTOLOGICAL INTERFERENCE. MECHANICAL REMOVAL OF VIRUS AND OF DETACHED INFECTED CELLS DURING CHANGES OF THE MEDIUM MIGHT ALSO BE CONDUCTIVE TO IT.

UNCLASSIFIED

USSR

UDC 616.988.75-092.9

6
GAVRILOV, V. I., SOLOV'Yeva, A. I., and VYALISEKINA, S. D., Institute of Virology imeni D. I. Ivanovskiy, Academy of Medical Sciences USSR

"A Model of Chronic Influenzal Infection of a Line of Swine Cells"

Moscow, Voprosy Virusologii, No 1, 1970, pp 14-20

Abstract: Fetal pig kidney cells were inoculated with type A influenza virus and grown on medium 199 with bovine serum, streptomycin, and penicillin. A total of 31 passages were made over a period of 214 days. Virus was isolated up to the 16th passage (98 days) from chronically infected cultures. From the 17th passage on, however, all attempts to detect the virus in the culture fluid by means of consecutive passages in chick embryos, human embryonic lung tissue, chick embryo fibroblasts, etc. were unsuccessful. Samples of fluid were assayed at various times for interferon with negative results.

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USSR

UDC 621.385.632

BYSTROV, V.V., GAVRILOV, V.L.

"Bench For Tests In A Dynamic Regime Of TWTs Of The Millimeter Wave-Length Band"

Elektron. tekhnika. Nauchno-tekhn.ssb. Tekhnol. i organiz. proiz-va (Electronic Technology. Scientific-Technical Collection. Technology And Organization Of Production), 1970, Issue 5(37), pp 87-90 (from RZh--Elektronika i yeye primeneniye, No 2, February 1971, Abstract No 2A179)

Translation: The bench makes it possible to measure the most important characteristics of traveling-wave tubes under conditions of serial production: voltage standing-wave ratio of the input and output, and dependence of the amplification factor on the frequency and output power. Measurement of the indicated characteristics of a TWT is accomplished at one working position. 5 ref. Summary.

1/1

USSR

UDC 547.242

GATILOV, Yu. F., IONOV, L. B., and GAVRILOV, V. M., Kazan' Pedagogical Institute

"Stereochemistry of Tertiary Arsine Oxides"

Leningrad, Zhurnal Obshchey Khimii, Vol 42(104), No 3, Mar 72, pp 540-545

Abstract: Enantiomers of dialkylaryl- and alkyl diarylarsine oxides are synthesized and studied. It is shown that the process of formation of arsine oxides from arsines is accompanied by retention of the relative configuration; inversion is observed when arsine sulfides are converted to arsine oxides. Racemization of arsine oxides is studied, and it is found that the rate of racemization increases with solvents in the following order: benzene-chloroform-nitromethane.

1/1

UDC 621.762.01(088.8)

USSR

POGODIN-ALEKSEYEV, G. I., ~~GAVRILOV, V. M.~~, KHRAMOV, S. P., KHAVROSHKIN, O. B.,
SYRKIN, V. G., and UEL'SKIY, A. A.

"Method of Producing Dispersed Materials"

USSR Authors' Certificate No 301379, Cl. C 23c 11/02, B 22 f 1/00, filed
7 Apr 66, published 2 Jun 71 (from RZh-Metallurgiya, No 1, Jan 72, Abstract
No 1G263P)

Translation of Abstract: A method is suggested for producing dispersed materials by the application of refractory metal compounds to powders through thermal decomposition of vapor of the metal-containing component, with the powder with enhanced mechanical properties, delivery of a layer of powder of the refractory compound is alternated with vapor of the metal-containing component in amounts sufficient to grow a layer of metal, with the metallic component that forms during thermal decomposition undergoing treatment by ultrasonic vibrations through a gaseous medium.

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USSR

UDC: 621.396.69:621.318(088.8)

GAVRILOV, V. M., SMORGONSKAYA, A. I., KANASHINSKIY, Yu. A., Novocherkassk
Permanent Magnet Plant

"A DC Electromagnet"

USSR Author's Certificate No 259274, filed 23 Aug 68, published 24 Apr 70
(from RZh-Radiotekhnika, No 12, Dec 70, Abstract No 12V440 P)

Translation: This Author's Certificate introduces a DC electromagnet which contains a magnetic circuit with pole piece, a permanent magnet, and a magnetizing coil connected to a source of direct current and used to control the magnitude of the magnetic field intensity in the working gap. In order to reduce the magnetizing power, the magnetizing coil is placed on a magnetically soft sleeve which covers a permanent magnet equipped with a pole piece.

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1/2 022 UNCLASSIFIED PROCESSING DATE--30OCT70
TITLE--ELECTROLYTE FOR THE ELECTROCHEMICAL POLISHING OF TUNGSTEN -U-

AUTHOR--(05)-DANILINA, G.A., PETROSYAN, A.K., VASILYEV, V.G., KANEVSKIY,
YU.L., GAVRILOV, V.M.
COUNTRY OF INFO--USSR

SOURCE--U.S.S.R. 260,789
REFERENCE--OTKRYTIYA, IZOBRET., PROM. OBRAZTSY, TOVARNYE ZNAKI 1970,
DATE PUBLISHED--06JAN70

SUBJECT AREAS--MATERIALS, MECH., IND., CIVIL AND MARINE ENGR

TOPIC TAGS--CHEMICAL PATENT, ELECTROLYTE, TUNGSTEN, ELECTROLYTIC POLISHING

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--1994/1993

STEP NO--UR/0432/70/000/000/0000/0000

CIRC ACCESSION NO--AA0115792

UNCLASSIFIED

2/2 022 UNCLASSIFIED PROCESSING DATE--30OCT70
CIRC ACCESSION NO--AA0115792
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. ELECTROLYTE USED IN THE
ELECTROCHEM. POLISHING OF W WITH ABRASIVE DISKS ON A METALLIC BINDER
CONSISTED OF: NA SUB2 HPD SUB4 10-15, NA SUB2 CO SUB3 5-7, AND WATER
78-85PERCENT. FACILITY: SPECIAL DESIGN TECHNOLOGICAL BUREAU OF
INVENTIONS OF THE COUNCIL OF MINISTERS, U.S.S.R.

UNCLASSIFIED

AA0040759

Gavrilou, V. M.

3-96

UR 0482

Soviet Inventions Illustrated, Section I Chemical, Derwent,

236175 TOOL, ELECTRODE comprises two identical steel plates of any shape made from hard cermet material which accounts for 25-40% of the volume of the electrode. When fixing the tool to the machine, the cermet plate is placed higher than the steel plate, in relation to the axis of rotation of the wheel being dressed. Current is supplied through the steel in the usual manner. 31.10.67. as 1194944/25-8. Pogodin-Alekseev, G.I et al. Special Design Office of Committee of Inventions and Discoveries of the Council of Ministers of the USSR. (12.6.69.) Bul.6/24.1.69. Class 48a. Int.C C23b.

19750447

AA0040759

AUTHORS: Pogodin - Alekseyev, G. I.; Gavrilov, V. M.;
Vasil'yev, V. G.; Kanevskiy, Yu. L.; Petrosyan,
A. K.; Ivanov, A. D.

Osoboye Konstruktorsko - Tekhnologicheskoye Byuro
Komiteta po Delam Izobreteniy i Otkrytiy pri
Sovete Ministrov SSSR

19750448

AA0040657

G

UR 0482

Soviet Inventions Illustrated, Section I Chemical, Derwent, 1-70

241017 THERMAL TREATMENT OF OBJECTS MADE OF REFRACTORY ALLOYS, involving heating, quenching and tempering is characterized in that in order to increase the ultimate strength at bending, by 10-30% the refractory alloys are subjected to ultrasonic treatment during the tempering stage. The proposed method is especially effective in the treatment of objects made of refractory alloys containing 6% and

more by weight of cobalt.

16.9.66 as 1114589/22-1. N.K. ROMANENKO et al.

(18.8.69) Bul 13/1.4.69. Class 40b, 40d. Int.Cl.

C 22c, C22 f.

LD 18

1/1
AUTHORS: Romanenko, N. K.; Pogodin-Alekseyev, G. I.; Gavrilov, V. M.; Leshchenko, I. G.; Kartashev, Yu. G. and Novgorodov, A. S.

19750246

GAVRILOV V.P.

Acc. Nr.: AP0042576

Ref. Code: UB 0454

JPRS 50162

Possible Periodicity in Thermal History of the Moon

(Abstract: "Possible Periodicity in the Thermal History of the Moon", by V. P. Gavrilov, Moscow Institute of the Petrochemical and Gas Industry; Moscow, *Astronomicheskii Vestnik*, Vol IV, No 1, 1970, pp 24-28)

The thermal history of the moon is a complex multistage process whose most important characteristic is the periodic alternation of epochs of active heating of the lunar interior and epochs of temporary decreases in thermal activity. Thus, thermally active and thermally passive epochs can be defined in the thermal history of the moon. In the course of evolutionary development of the moon sea sectors are transformed into continental sectors. This means that the lunar continental crust has a more complex structure than the sea crust. At the base of the continental crust there is a basaltic layer which is covered by a differentiate, that is, a slag rock, whereas beneath the seas and oceans the lunar crust consists only of a basalt layer. In this respect there is a similarity between the lunar and terrestrial crusts. However, the process of formation of the earth's crust is far more complex and varied, accompanied by various tectonic movements, which cause bending of the layers and the formation of large faults. On the moon the range of tectonic movements is far more modest than on the earth. The faults observed

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on the moon were probably formed during an increase or decrease in the volume of the moon during the period of its heating or cooling. It is clear that thermal heating of the lunar interior and gravitational differentiation are the two decisive factors leading to the formation of the principal structural forms on the lunar surface. Within this history of thermal heating there were not less than two megacycles during which large oceans filled with basaltic lava were formed. Each of these megacycles consisted of several thermally active and thermally passive phases whose alternation is marked by the formation of a ring boundary around the lunar seas and oceans. In the course of gravitational differentiation and the segregation of light and porous differentiate (slag) from the basaltic lavas the continents came into being and therefore are secondary formations relative to the lunar seas of the same age. The major lunar creators appeared as a result of formation of a local hearth of molten magma, along whose periphery there was an accumulation of slag rocks, forming crater barriers.

19760562

7/2

USSR

UDC: 681.325.5

GAVRILOV, V. S., GORNOSTAYEV, V. N., ZAPOL'SKIY, B. A., SEROV, B. V.,
Karelian Scientific Research Institute of the Forestry Industry

"A Parallel Ring Register"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki,
No 20, Jul 72, Author's Certificate No 343305, Division G, filed 10 Mar 70,
published 22 Jun 72, p 175

Translation: This Author's Certificate introduces a parallel ring register which contains n ring registers and AND and OR circuits. As a distinguishing feature of the patent, provision is made for changing the numbers in the register without loss of time on carry operations and the amount of equipment is reduced by introducing one single-place adder for every two inputs in each of the n registers. The carry output of each adder is connected to one of the inputs of the adder located in the next higher register and shifted relative to the adder of the lower register by one digit in the direction of motion of information in the register, and the input of the adder of the lower register is connected to the output of the AND circuit. One input of the AND circuit is connected to the input of the device, and the other is connected through the OR circuit to the outputs of one of the digital places of each of the n registers.

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172 012
UNCLASSIFIED
TITLE--HYPERFINE STRUCTURE AND NATURE OF EXCHANGE INTERACTIONS IN COPPER
CARBOXYLATE -U-
AUTHOR--(04)-YABLOKOV, YU.V., GAVRILOV, V.V., ABLOV, A.V., MILKOVA, L.N.
COUNTRY OF INFO--USSR
SOURCE--DOKL AKAD. NAUK SSSR 1970, 191(5), 1102-5
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--HYPERFINE STRUCTURE, COPPER COMPOUND, COMPLEX COMPOUND, IONIC
BONDING
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--3008/1260
STEP NO--UR/0020/70/191/005/1102/1105
CIRC ACCESSION NO--AT0138271
UNCLASSIFIED

2/2 012
 CIRC ACCESSION NO--AT0138271 UNCLASSIFIED PROCESSING DATE--04DEC70
 ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE EPR HYPERFINE STRUCTURE OF CU
 SUB2 (O SUB2 CR) SUB4 .2L, WHERE R EQUALS ME, ET PHCH SUB2, CLCH SUB2,
 CL SUB3 C, AND L EQUALS 2,CHLOROPYRIDINE, PH SUB3 P, UREA, QUINOLINE,
 BETA NAPHTHOQUINOLINE, ALPHA PICOLINE, WERE INVESTIGATED. WITH AN
 INCREASE OF THE ELECTRONEGATIVITY OF THE ACID GROUP THE CU-O SIGMA BOND
 BECOMES MORE IONIC. THE IONIC CHARACTER OF THE CU-O BOND ALSO
 INCREASES WITH INCREASE OF THE ELECTRON DONOR PROPERTIES OF THE AXIAL
 LIGANDS IN THE COMPLEX. WITH A CHANGE IN THE CHARACTER OF THE CU-O
 SIGMA BOND, THE CHARACTER OF THE PLANAR PI BOND CHANGES IN THE REVERSE
 DIRECTION. THESE RESULTS CAN BE USED TO ELUCIDATE THE MECHANISM OF THE
 EXCHANGE INTERACTION OF CU-CU AS HAVING INDIRECT CHARACTER, AND THE
 OBSD. SIGNIFICANT EXCHANGE INTEGRAL IS PROBABLY DUE TO JOINT
 MANIFESTATIONS OF INTERACTIONS THROUGH SIGMA AND PI BONDS OF CU-O AND
 O-C. FACILITY: KAZAN. FIZ.-TEKH. INST., KAZAN, USSR.

UNCLASSIFIED

1/2 010
UNCLASSIFIED
TITLE--SEPARATE BIAXIAL ORIENTATION OF POLYPROPYLENE FILMS -U-
PROCESSING DATE--23OCT70
AUTHOR--(03)-VLASOV, S.V., SAGALAYEV, G.V., GAVRILOV, V.V.
COUNTRY OF INFO--USSR
SOURCE--PLAST. MASSY 1970, (3), 23-4
DATE PUBLISHED-----70
SUBJECT AREAS--MATERIALS
TOPIC TAGS--POLYPROPYLENE, PLASTIC FILM, PLASTIC MECHANICAL FILM
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--1997/0656
STEP NO--UR/0191/70/000/003/0023/0024
CIRC ACCESSION NO--AP0119564
UNCLASSIFIED

UNCLASSIFIED

PROCESSING DATE--23OCT70

2/2 010
CIRC ACCESSION NO--AP0119564

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT, THE PRINCIPLES OF CROSSWISE ORIENTATION OF ISOTROPIC POLYPROPYLENE (I) FILMS AT VARIOUS TEMPS. AND THE PROPERTIES OF THE FILMS OBTAINED ARE DISCUSSED. THE OPTIMUM TEMP. OF CROSSWISE ORIENTATION IS 130-150DEGREES. RUPTURE OF I FILMS OCCURS AT 100-10DEGREES; AT 155-70DEGREES, THE FILMS UNDERGO DEORIENTATION. THE STRENGTH OF I FILMS AT 110-50DEGREES IS INDEPENDENT OF THE ORIENTATION TEMP. THE DEGREE OF CROSSWISE AND LENGTHWISE STRETCHING ARE RELATED TO THE ORIENTATION TEMP. AND THE STRENGTH OF THE FILMS OBTAINED.

UNCLASSIFIED

UDC 533.9.08

USSR

ANDREYEV, S. I., GAVRILOV, V. YE., Leningrad

"Method for Experimentally Determining the Thermodynamic Values of a Nonideal Plasma"

Moscow, Teplofizika Vysokikh Temperatur, No 6, Nov/Dec 70, pp 1256-1259

Abstract: A method is proposed for experimentally determining simultaneously the internal energy of a plasma, its temperature, and the volume belonging to one heavy particle. It is noted that theory of nonideal plasma is now in the development stage and is in critical need of experimental data relative to its physical properties. The method is based on an analysis of the power balance in pulse heating of the plasma in a closed volume. In the absence of gasdynamic motion, the power expended on heating the plasma is spent only on a change in its internal energy and on losses associated with radiation and conductive thermal conductivity. By determining experimentally the power expended on heating the plasma and the power spent on losses associated with radiation and conductive thermal conductivity and also the temperature of the plasma, one can determine the heat capacity of the plasma from the power balance equation. This equation is valid under the assumption that the heat

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USSR

ANDREYEV, S. I., GAVRILOV, V. YE., Teplofizika Vysokikh Temperatur, No 6,
Nov/Dec 70, pp 1256-1259

transmitted by macroscopic motion of the gas (convective heat exchange) and also the kinetic energy of this motion is infinitesimally small. The validity of this assumption requires special verification. In these experiments pulse discharges in quartz tubes filled with xenon up to a pressure of 400 and 600 mm Hg were used; the length of the tube between the electrodes was 150 mm and the internal diameter was 7.4 or 10.5 mm. Special measures were taken to avoid axial motion of the gas. The proposed method is recommended for studying plasmas of any composition and density and also for a nonequilibrium but quasistationary plasma; the method can also be applied with plasmas formed by pulsed laser radiation.

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1/2 042 UNCLASSIFIED PROCESSING DATE--20NOV70
TITLE--RADIATION ENERGY LOSSES FROM DENSE XENON PLASMA -U-

AUTHOR--(G2)--ANDREYEV, S.I., GAVRILOV, V.YE.

COUNTRY OF INFO--USSR

SOURCE--TEPLOFIZ. VYS. TEMP.; 8: 203-5(1970)

DATE PUBLISHED-----70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--XENON, DENSE PLASMA, DISCHARGE TUBE, HEAT LOSS, GAS PRESSURE,
PLASMA TEMPERATURE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--2000/1168

STEP NO--UR/0294/70/008/000/0203/0205

CIRC ACCESSION NO--AP0124823

UNCLASSIFIED

2/2 042
CIRC ACCESSION NO--AP0124823

UNCLASSIFIED

PROCESSING DATE--20NOV70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. INTEGRAL RADIATION LOSSES IN A DENSE XENON PLASMA WERE MEASURED USING A PULSED DISCHARGE IN A CLOSED QUARTZ TUBE FILLED WITH XENON WITH INITIAL PRESSURE FROM 50 TO 600 MM HG WITH INSIDE DIAMETER FROM 4 TO 15 MM AND 150 MM DISTANCE BETWEEN ELECTRODES. PLASMA TEMPERATURE AS A FUNCTION OF INITIAL INTENSITY OF DISCHARGE WAS DETERMINED. CURVES OF ELECTRICAL AND OPTICAL MAGNITUDE VARIATIONS DURING THE DISCHARGE ARE GIVEN. IT WAS FOUND THAT IN SUFFICIENTLY DENSE PLASMA (P IS GREATER THAN 10 ATM AND T EQUALS 10,000 TO 20,000 DEGREES K) THE MAGNITUDE OF ENERGY LOSSES PER UNIT CYLINDER SURFACE VARIED VERY LITTLE FROM ONE ANOTHER. PLASMA PRESSURE WAS ESTIMATED USING CALCULATIONS OF EQUILIBRIUM IONIZED PLASMA COMPOSITION AT GIVEN TEMPERATURE, INITIAL GAS PRESSURE, AND RADIAL TEMPERATURE DISTRIBUTION. TABULATED DATA ON RELATIVE RADIATION LOSSES IN PLASMA CYLINDERS WERE USED FOR ESTIMATING PLASMA TEMPERATURE.

UNCLASSIFIED

GAVRILOV, Ye. I.

JPRS 54786

23 December 1971

UDC 624.C27.001.24

ON THE PROBLEM OF DETERMINING THE HEIGHT OF MULTIFLUE SMOKE STACKS

Article by L. A. ¹²Gavrilov, Doctor of Technical Sciences, Professor; Ye. I. Gavrilov, Engineer, Moscow Power Engineering Institute, Moscow, Toponomastika, Russian, No 8, 1971, pp 76-78;

A constant tendency toward the growth of single powers of thermal power stations with the wide use of sulfurous fuels and the absence of economical methods of sulfur trapping have led to the necessity of constructing high, expensive smoke stacks (of a height 250, 300, 350 m and more). The conclusion has been reached in many countries with a highly developed power system that it is necessary to build the minimum number of smoke stacks (one in the limit) and to make them multiflue to provide reliable operation of the station. A unit of power 500-800 MW or two units of 300 MW each are connected to one flue of such a stack. The development of multiflue stacks involves the solution of many problems, one of which is the development of a technique for calculating the height to ensure the necessary scattering of harmful admixtures. The geometric height of a smoke stack (Fig. 1a) is found from the expression:

$$H = H_0 + \Delta H, \quad (1)$$

where H is the effective height determined from the condition of ensuring established norms for the spread concentration of harmful admixtures in meters, and ΔH is the rise of the flue above the opening of the smoke stack in meters.

Determining the value of H is not considered in this paper, since it does not involve the multiflue characteristic. For the variety of formulas proposed by different authors for calculating the height of the rise of the flue above the opening of the stack, the majority of these can be reduced to the following form:

[1 - USSR - C]

USSR

UDC 8.74

GAVRILOV, YU. A., DOLGANOVSKIY, V. YU., MITROFANOV, YU. I.

"Study of the Characteristics of a Time-Sharing Computer System by the method of Programmed Simulation"

V sb. Sistemn. modelirovaniye (Systems Simulation -- collection of works), vyp. 2, Novosibirsk, 1971, pp 71-96 (from RZh-Kibernetika, No 9, Sep 72, Abstract No 9V625)

Translation: A hypothetical single-processor time sharing computer system the composition, structure and functioning algorithms of which were selected on the basis of analyzing existing foreign systems was used as the object of investigation the results of which are presented in this paper. The technical parameters of almost all the devices entering into the hypothetical time-sharing computer system are taken equal to the parameters of the corresponding Soviet series-manufactured devices.

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USSR

UDC 8.74

GAVRILOV, YU. A., MITROFANOV, YU. I.

"Program Simulation of the AIST-0 Computer System"

V sb. Sistemn. modelirovaniye (Systems Simulation -- collection of works), vyp. 2, Novosibirsk, 1971, pp 111-137 (from RZh-Kibernetika, No 9, Sep 72, Abstract No 9V626)

Translation: A comprehensive description of the principles of construction, structure and functioning of the program model of the AIST-0 computer system developed at the computation center of the Siberian Department of the USSR Academy of Sciences is presented. The program model is structurally a set of processes programmed in the form of ALGOL-60 procedures. The relation of the processes to each other is insured in terms of global variables and files. The model processes represent the physical devices entering into the AIST-0 system and the indexes of the system together with the control panels. Certain global files of the model depict the queues of the requests existing in one form or another in a real system. The requests in the model represent the signals which are exchanged between the various devices of the AIST-0 system during its operation, the mathematical interrupt characteristics, the numbers of the panels and the processes. The requirements of various types going from certain processes to others are represented by various codes by the values of which the type of request and the set and nature of operations are defined

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USSR

GAVRILOV, YU. A., et al., Sistemn. modelirovaniye, vyp. 2, Novosibirsk, 1971, pp 111-137

which must be performed in order to service the given requests. The process algorithms of the model are described, and some results of simulation of the AIST-0 system are presented.

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GAVRILOV, YU.V.

Digital Computers

USSR

GAVRILOV, Yu. V., PUCHKO, A. N.

UDC 681.325.5

"Arithmetic Devices for High-Speed Digital Computers"

Arifmeticheskiye ustroystva dlya vysokoskorostnykh EDSM [English version above].
Moscow, Sovetskoye Radio Press, 1970, 280 pp.

Annotation: This book covers the general theoretical as well as practical problems of the construction of arithmetic devices for electronic digital computers. The most effective algorithms for operation of arithmetic devices of various types are described and several new hardware designs in the construction of arithmetic units are analyzed. Comparative evaluation of several variants of the organization of arithmetic devices are presented.

The book is designed for a broad range of engineers and scientific workers involved in problems of planning and operation of digital computers, as well as graduate students and students in the higher levels of the corresponding specialties.

45 tables; 83 figures; 48 biblio. refs.

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Table of Contents appears in RU/RAS

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USSR

UDC 681.3

GAVRILOV, Yu. V., PUCHKO, A. N.

"Arithmetic Devices for High-Speed Digital Computers"

Arifmeticheskiye Ustroystva Bystrodeystvuyushchikh ETsVM. [English Version Above]
Moscow, Sovetskoye Radio Press, 1970, 280 pages (Translated from Referativnyy
Zhurnal Kibernetika, No. 4, April, 1971, Abstract No. 4 V625K).

Translation: This book analyzes methods of performance of arithmetic operations in binary notation, as well as problems of their circuit realization. In the explanation of individual statements, arithmetic devices of specific computers are used as examples. Table of Contents: Chapter 1. Systems of Notation and Forms of Representation of Numbers; Chapter 2. Binary Adders; Chapter 3. Methods of Performing Multiplication in the Binary System of Notations; Chapter 4. Methods of Performing Division in the Binary System of Notations; Chapter 5. Operations of Comparison of Codes in the Arithmetic Devices of Digital Computers; Chapter 6. Operations of Shifting of Codes in the Arithmetic Device.

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GAVRILOV, Yu.V., PUCHKO, A.N.

"Arithmetic Devices for High-Speed Digital Computers"

Arifmeticheskiye Ustroystva Bystrodevstvuyushchikh ETSVM [English version above],
Moscow, Sovetskoye Radio Press, 1970, 280 pp

Annotation: This book covers the general theoretical as well as practical problems of the construction of arithmetic devices for electronic digital computers. The most effective algorithms for operation of arithmetic devices of various types are described and several new hardware designs in the construction of arithmetic units are analyzed. Comparative evaluations of several versions of the organization of arithmetic devices are presented.

The book is designed for a broad range of engineers and scientific workers involved in problems of planning and operation of digital computers, as well as graduate students and students in the higher levels of the corresponding specialties.

45 tables; 83 figures; 48 biblio. refs.

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USSR

GAVRILOV, Yu. V., PUCHKO, A. N., Arifmeticheskive Ustroystva Bystrodeystvuyushchikh ETSVM, Moscow, Sovetskoye Radio Press, 1970, 280 pp.

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USSR

KOMAROVA, M. F., BUYNOV, N. N., IOFFE, A. YA., KAGANOVICH, L. I., and GAVRILOVA, A. B., Institute of Metal Physics, UNTs [expansion unknown] Academy of Sciences USSR

"Effect of Small Additions of Beryllium, Titanium, and Zirconium on the Structure and Properties of AL9 Alloy"

Sverdlovsk, Fizika Metallov i Metallovedeniye, Vol 36, No 1, 1973, pp 140-148

Abstract: Metallographic and electron microscopic studies were conducted and the mechanical properties of AL9 alloy, alloyed with Be, Ti, and Zr, determined. The hypoeutectic alloy has the following composition (in %): 7 Si, 0.3 Mg, 0.015 Cu, 0.1 Zn, and 0.25 Fe with varying small amounts of the alloying elements. Results of analysis showed that the small amounts of Be, Ti, and Zr, taken in limits from 0.001 to 0.1% (separately or together) do not alter the nature of the eutectic in the alloy, its quantity and silicon particle size in the eutectic or the size of the solid solution nucleus between the eutectic colonies. Investigation in the work of alloying showed changes in the kinetics of decomposition of the supersaturated solid solution, acceleration of the formation of the metastable beta'-phase and silicon particles, and refining of the particles and an increase in their number. These factors promoted increased alloy strength where joint alloying increased this strength by 30-40%. Six figures, 13 bibliographic references. 1/1

USSR

UDC 543.70

PYATNITSKIY, I. V., and GAVRILOVA, E. F., Kiev State University
imeni T. G. Shevchenko, Kiev, Ministry of Higher and Secondary
Specialized Education Ukrainian SSR

"The Extraction-Photometric Determination of Rare-Earth Elements
Based on the Extraction of 8-Hydroxyquinolates"

Moscow, Zhurnal Analiticheskoy Khimii, Vol XXV, No 3, March 70,
pp 445-449

Abstract: Many organic reagents used in the photometric determination of rare-earth elements are ineffective if the solution contains any complexing substances, including tataric, citric and certain other hydroxy acids.

The authors developed a method which could be used in the presence of such substances, and also investigated a number of rare-earth elements not previously studied in this connection. This was demonstrated by extraction of the 8-hydroxyquinolates of lanthanum, neodymium, samarium, europium, gadolinium, dysprosium, holmium, erbium, thulium and ytterbium, with the use of chloroform, in the presence and also in the absence of tataric and citric acids.

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PYTNITSKIY, I. V., et al., Zhurnal Analiticheskoy Khimii, Vol XXV, No 3, March 70, pp 445-449

From the experimental data obtained, the authors also determined the optimal conditions for complete extraction from hydroxy acid solutions, the extraction constants, the absorption spectra, and the molar extinction coefficients of the rare-earth - 8-hydroxyquinolate solutions in chloroform.

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ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE EXTN. OF 8, HYDROXYQUINOLINATES OF LA, ND, SM, EU, GD, DY, HO, ER, TM, AND YB WITH CHCL SUB3 IN THE PRESENCE AND IN THE ABSENCE OF TARTARIC ACID AND CITRIC ACID WAS STUDIED. OPTIMUM CONDITIONS FOR THE COMPLETE EXTN. OF HYDROXY ACID SOLNS. (PH 8.5-9.5 CONCN. OF 8, HYDROXYQUINOLINE IN CHCL SUB3 0.1-0.5M) WERE FOUND AND THE EXTN. CONSTS. WERE CALCD., THE ABSORPTION SPECTRA WERE MEASURED, AND THE MOLAR ABSORPTIVITIES OF THE RARE EARTH 8, HYDROXYQUINOLINATES IN CHCL SUB3 WERE FOUND. AN EXTN. PHOTOMETRIC METHOD IS SUGGESTED FOR THE DETN. OF RARE EARTHS IN SOLNS. CONTG. TARTARIC OR CITRIC ACIDS. TO 10-15 ML OF RARE EARTH CHLORIDE OR NITRATE SOLN. AT PH 8.5-9.5 CONTG. IS SMALLER THAN 0.2M TARTARIC OR 0.1-0.05M CITRIC ACID, ADD 10 ML 8, HYDROXYQUINOLINE IN CHCL SUB3 (0.5M FOR LA, ND, SM; 0.3M FOR EU, GD; 0.1M FOR DY, HO, ER, TM, AND YB) AND SHAKE FOR 5 MIN. SEP. THE ORG. LAYER AND DIL. TO 25 ML WITH CHCL SUB3. MEASURE THE ABSORBANCE AT 370-80 NM. FACILITY: KIEV. STATE UNIV., KIEV, USSR.

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